

separated piece of the GaAs substrate 1. An example of the semiconductor element or device so manufactured is illustrated in Fig. 4.

[Replace the paragraph beginning at page 21, line 13, with:]

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cond.

Similar to the semiconductor device according to the first embodiment, the semiconductor device of this embodiment has a peripheral projecting flange running around the substrate 1. The flange includes a plurality of layers; a nickel based plating layer 4 (for example, the NiP layer, Ni-B layer, NI-B-W layer), a catalyst layer 3 (for example, Pd layer, Pd/Ti layer), a nickel based electrolessly plated alloy layer (for example, Ni-P layer, Ni-B layer, NI-B-W layer), a substituted electrolessly gold plated layer, and then a laser-cut metal layer 10 (for example, Ni layer, Cr layer). It should be noted that the second conducting layer 9 has a nickel based electrolessly plated alloy layer and a substituted electrolessly gold plated layer.

IN THE CLAIMS

Cancel claim 1-5 and replace the indicated claims with:

- Q10
6. (Amended) A semiconductor device comprising:
- a semiconductor substrate having first and second main surfaces, having a semiconductor element in the first main surface, and having a peripheral surface contacting the first and second main surfaces;
  - a heat radiation layer on the second main surface of the semiconductor substrate;
  - and
  - a flange including a plurality of metal layers disposed on the peripheral surface of the substrate, the metal layers comprising:
    - a first metal layer having a surface layer containing palladium on a side toward the first main surface;
    - a second metal layer of a nickel-based alloy disposed on the surface layer containing palladium of the first metal layer, the second metal layer having a top portion located below the first main surface; and

a third metal layer disposed under the first metal layer.

7. (Amended) The semiconductor device according to claim 6, wherein the third metal layer comprises a nickel-based alloy layer, a gold layer, and a laser-cut metal layer including one of a nickel layer and a chromium layer.

8. (Amended) The semiconductor device according to claim 7, wherein the third metal layer is selected from the group consisting of a single layer of gold, and a plurality of layers including a titanium layer and a gold layer, on the laser-cut metal layer.

9. (Amended) The semiconductor device according to claim 6, wherein the first metal layer comprises one selected from the group consisting of a palladium layer and a titanium layer under the palladium layer, and a single layer.

10. (Amended) The semiconductor device according to claim 6, wherein the second metal layer is selected from the group consisting of Ni-P alloy, Ni-B alloy, and Ni-B-W alloy.

*IN THE ABSTRACT*

*Replace the abstract with:*

ABSTRACT OF THE DISCLOSURE

A semiconductor device having a plated heat sink (PHS) layer on the back surface, preventing a short circuit between a bonding wire, and a first metal layer. A method of making a semiconductor device including forming a catalyst layer on a bottom of a first separation groove in the front surface of a semiconductor substrate, and forming the first metal layer selectively in the first separation groove by electroless plating, using the catalyst layer as a catalyst.